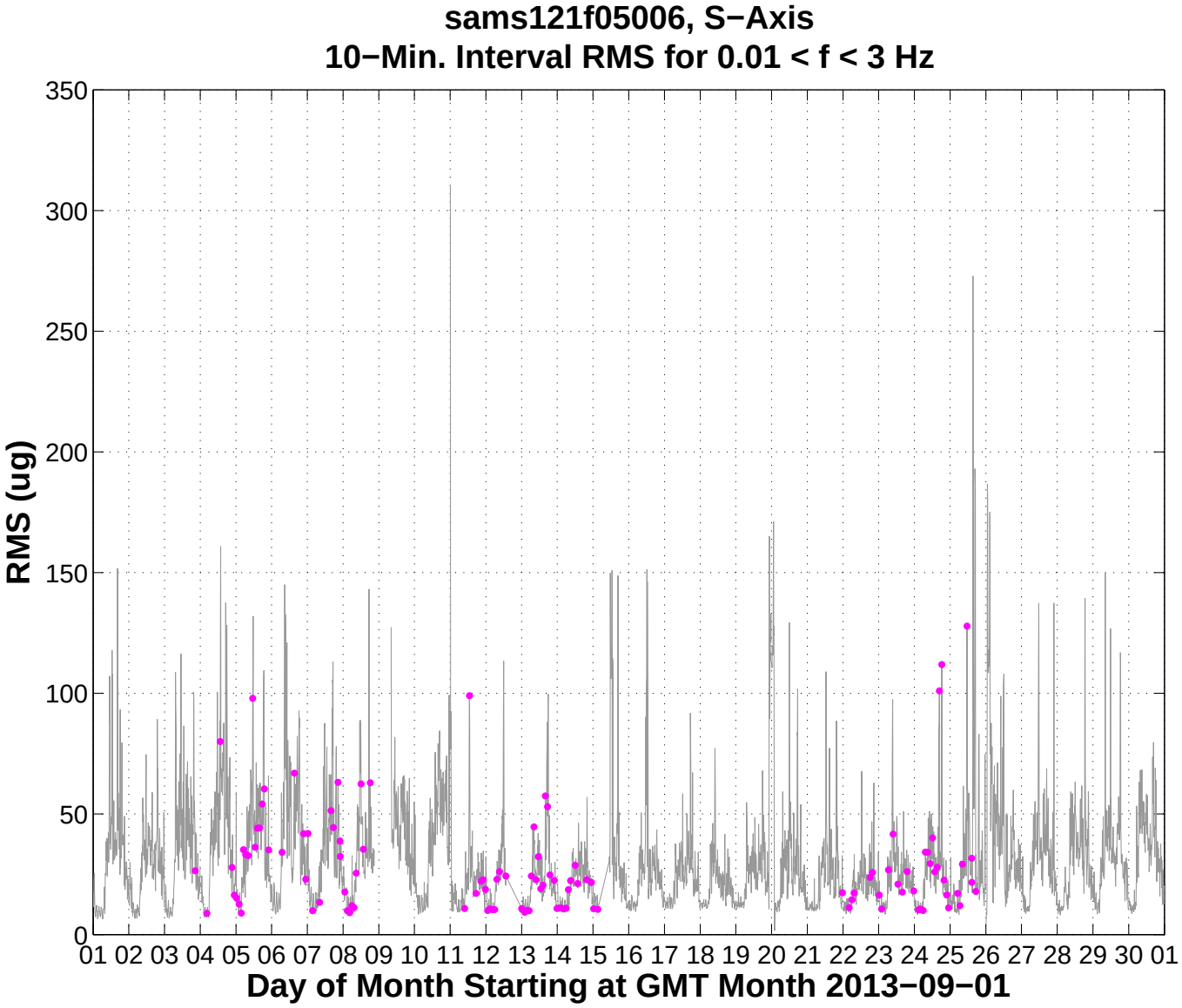
# EWIS Port Truss Unknown Qualify



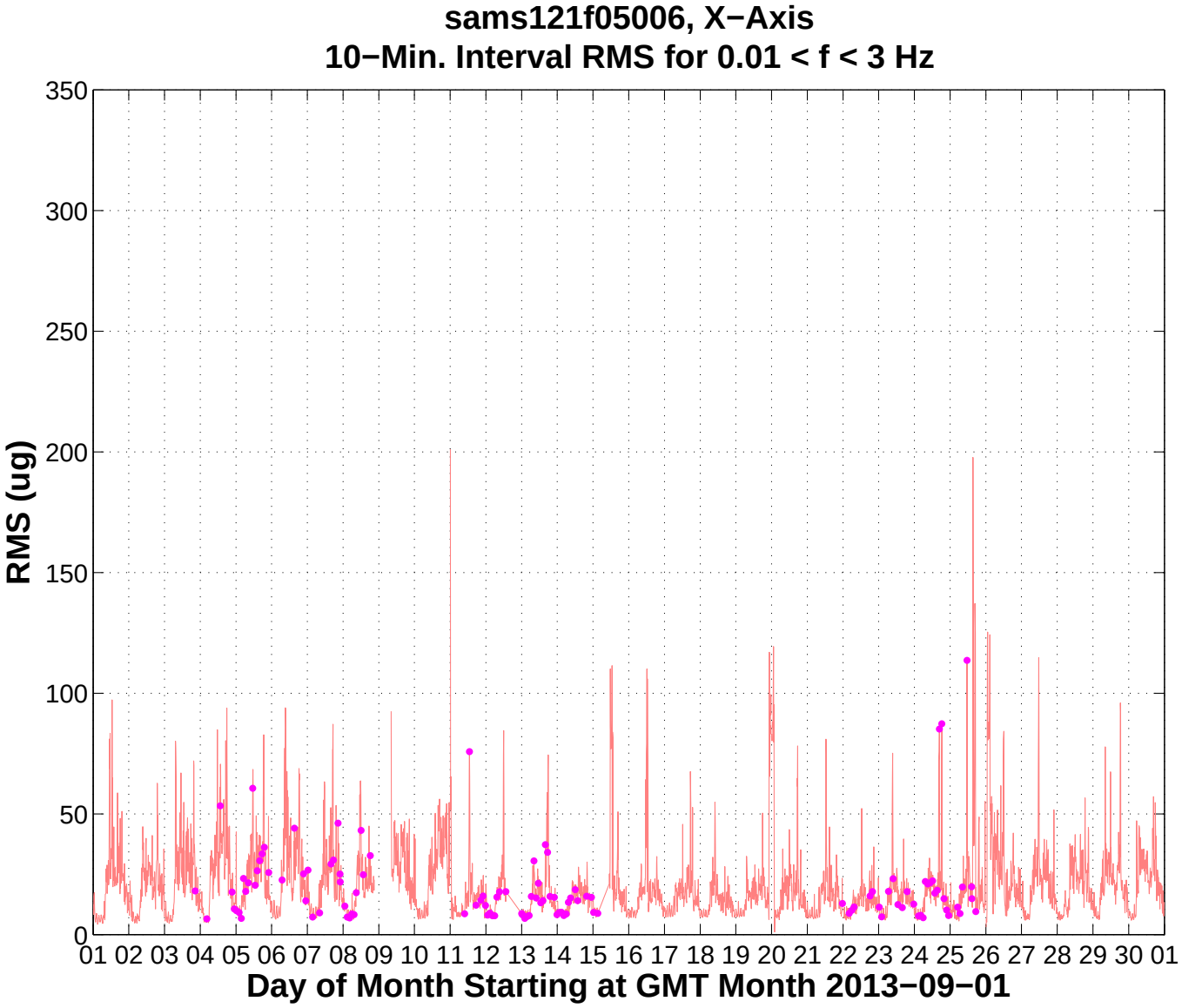

| Description | |
|---|---|
| Sensor | SAMS 121f05<br>142.0000 sa/sec (6.00 Hz) |
| Location | JPM1F5, ER4, Drawer 2 |
| Plot Type | Interval RMS (10-min.) f < 3 Hz |

**Notes:**

- See background notes on last page.
- This plot shows a statistical summary for the entire month of September 2013.
- The gray trace in the plot here is based on SAMS measurements in the JEM, which were low-pass filtered ( f < 3 Hz ) to focus on the vehicle structural mode regime.
- The “S-Axis” in the title references the fact that these are total RMS results from X-, Y-, and Z-axis data.
- The periodicity in this gray trace is attributed to the daily cycle of crew sleep and wake. Higher levels during wake.
- The magenta dots were placed on top of the gray trace RMS results at times enumerated as EWIS trigger times.
- Note that there are clearly some times when EWIS triggers were coincident with peaks in SAMS RMS, but also many that are not coincident.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Vehicle |
| Source: | EWIS Port Truss Unknown |

# EWIS Port Truss Unknown
# Qualify



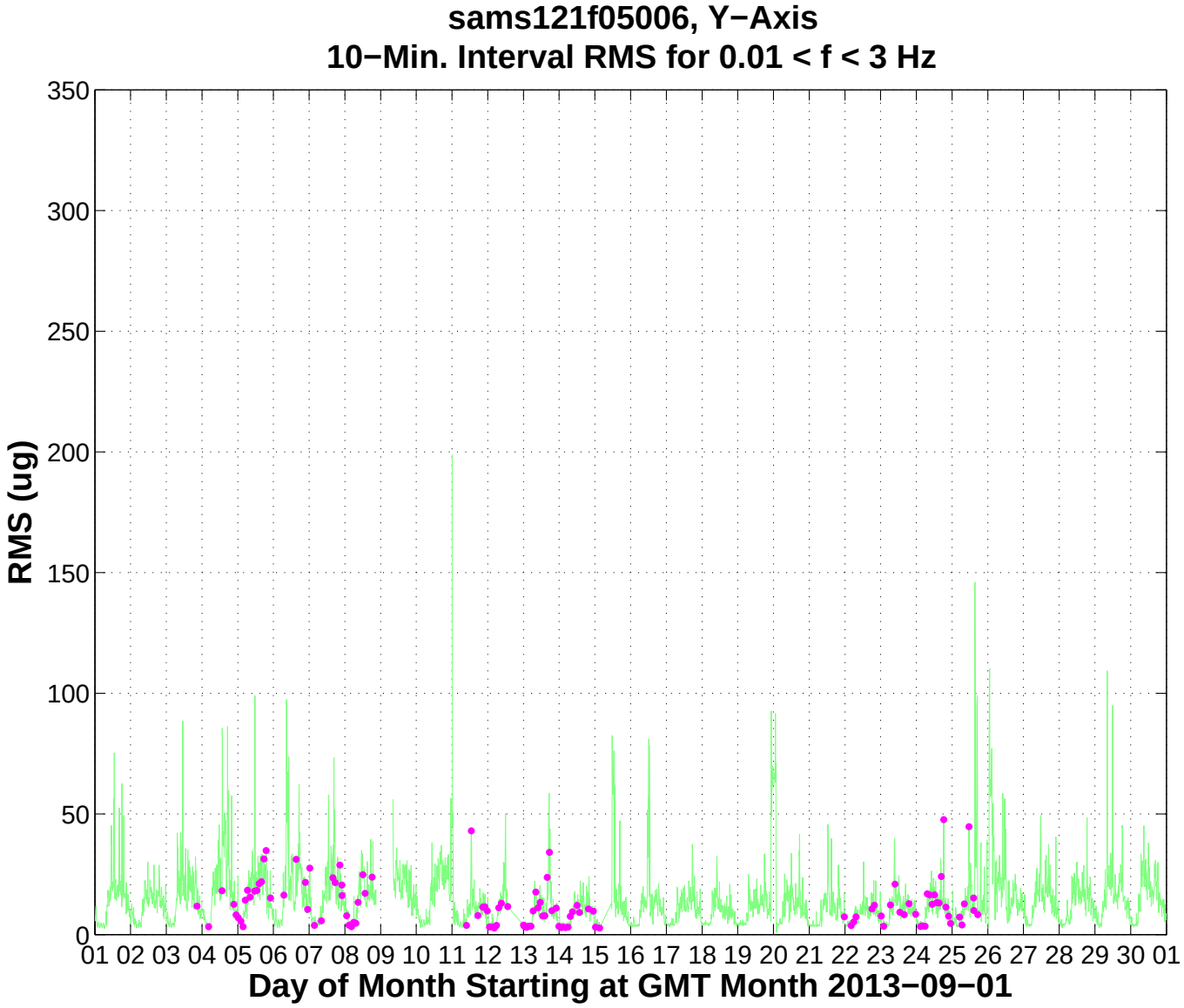

| Description | |
|---|---|
| Sensor | SAMS 121f05<br>142.0000 sa/sec (6.00 Hz) |
| Location | JPM1F5, ER4, Drawer 2 |
| Plot Type | Interval RMS (10-min.) f < 3 Hz |

**Notes:**

- This plot is similar to the plot on the first page except that the light-red trace in the plot here is for the X-axis only.
- Note again that there are some times when EWIS triggers were coincident with peaks in SAMS X-axis RMS, but also many that are not coincident.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Vehicle |
| Source: | EWIS Port Truss Unknown |

# EWIS Port Truss Unknown Qualify



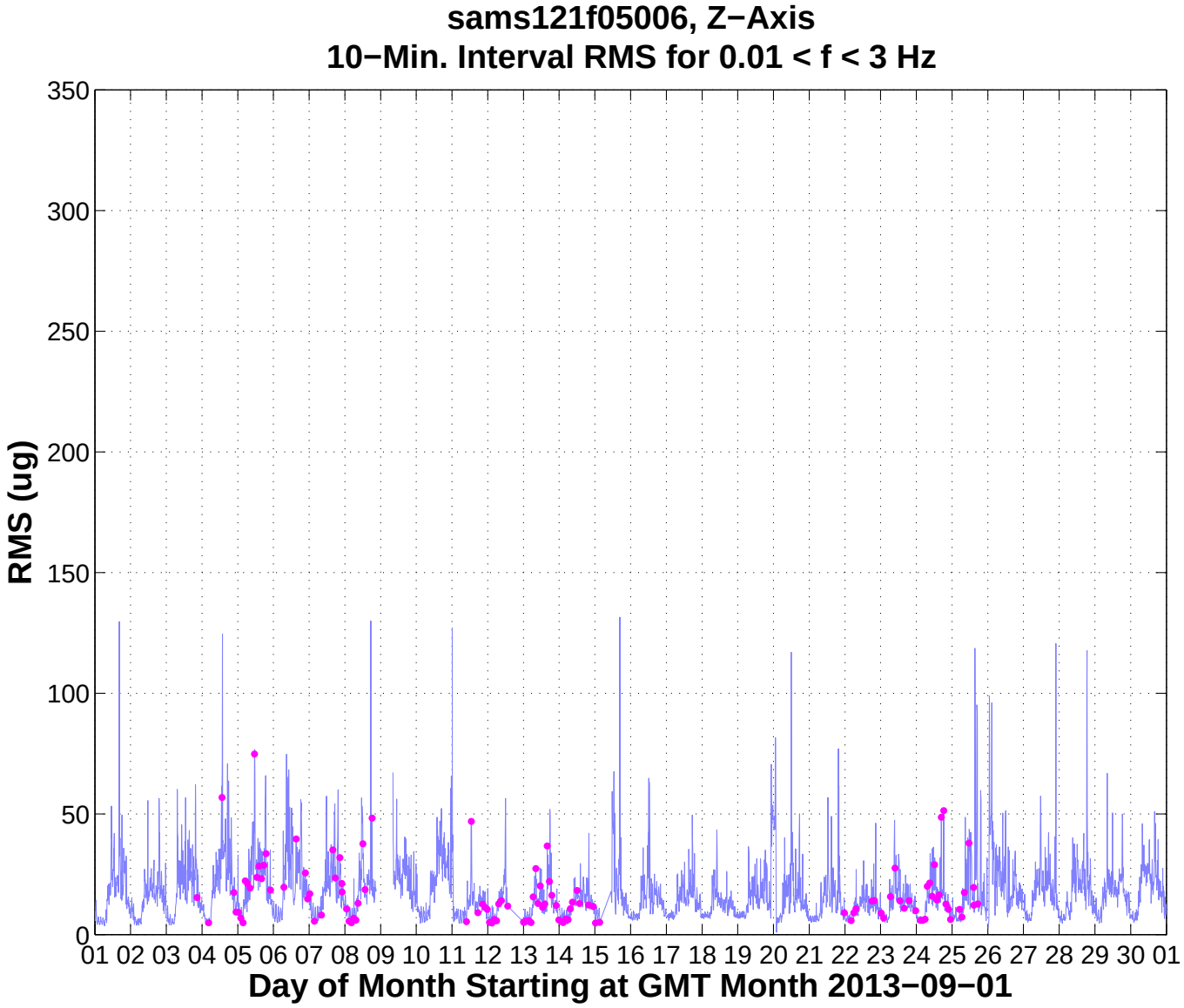

| Description | |
|---|---|
| Sensor | SAMS 121f05<br>142.0000 sa/sec (6.00 Hz) |
| Location | JPM1F5, ER4, Drawer 2 |
| Plot Type | Interval RMS (10-min.) f < 3 Hz |

**Notes:**

- This plot is similar to the plot on the first page except that the light-green trace in the plot here is for the Y-axis only.
- Note again that there are some times when EWIS triggers were coincident with peaks in SAMS Y-axis RMS, but also many that are not coincident.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Vehicle |
| Source: | EWIS Port Truss Unknown |

# EWIS Port Truss Unknown Qualify



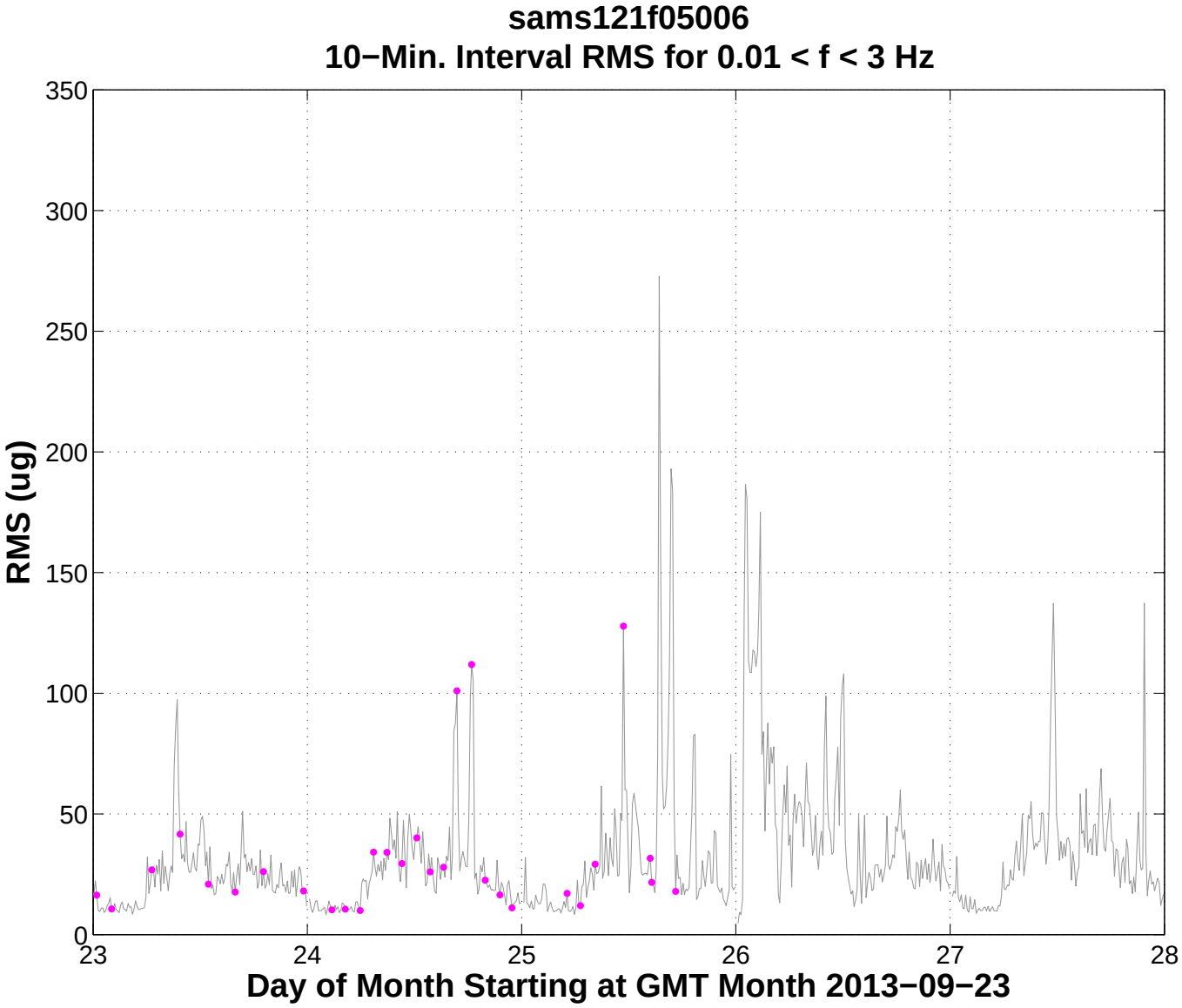

| Description | |
|---|---|
| Sensor | SAMS 121f05<br>142.0000 sa/sec (6.00 Hz) |
| Location | JPM1F5, ER4, Drawer 2 |
| Plot Type | Interval RMS (10-min.) f < 3 Hz |

**Notes:**

- This plot is similar to the plot on the first page except that the light-blue trace in the plot here is for the Z-axis only.
- Note again that there are some times when EWIS triggers were coincident with peaks in SAMS Z-axis RMS, but also many that are not coincident.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Vehicle |
| Source: | EWIS Port Truss Unknown |

# EWIS Port Truss Unknown Qualify



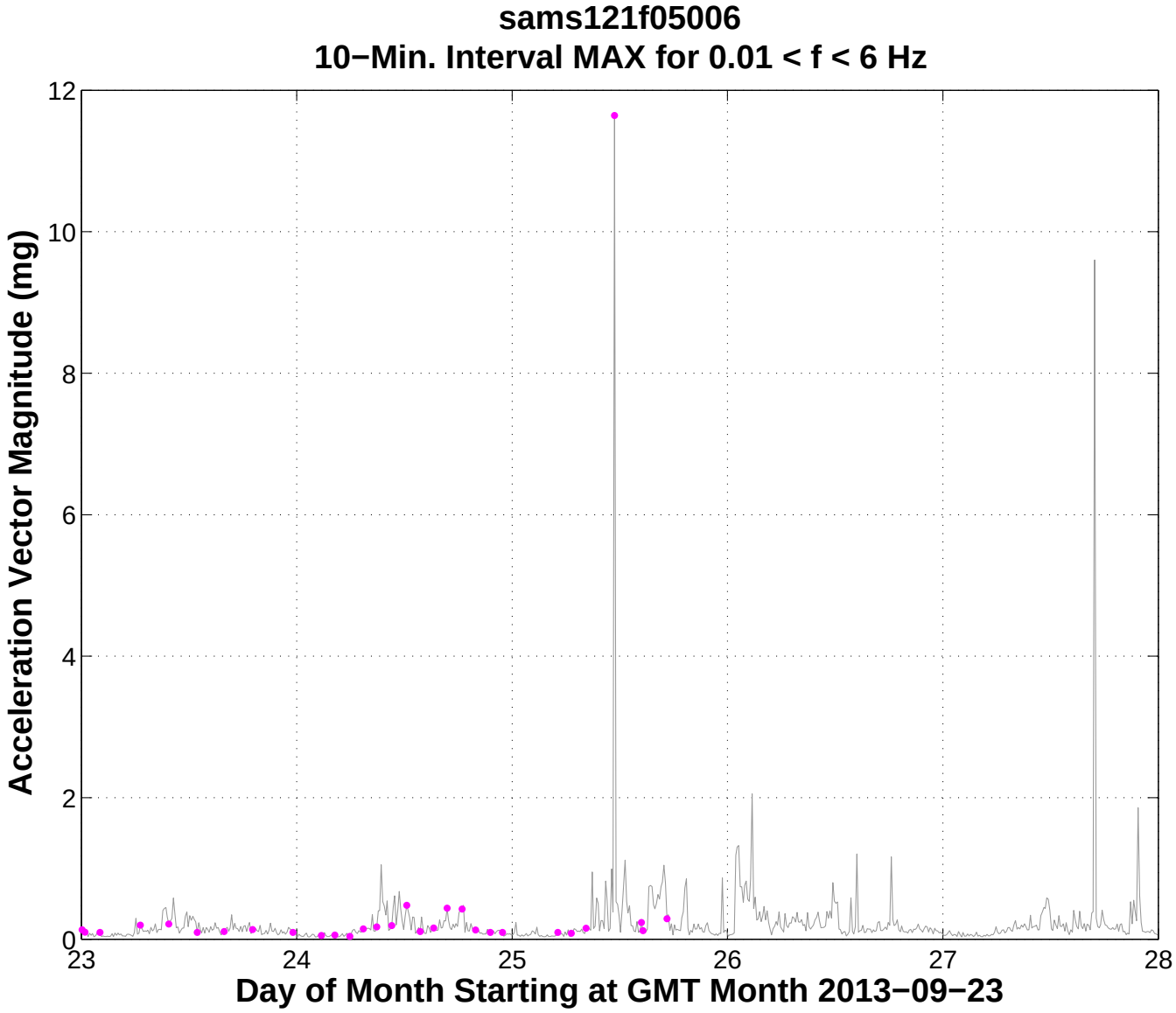

| Description | |
|---|---|
| Sensor | SAMS 121f05<br>142.0000 sa/sec (6.00 Hz) |
| Location | JPM1F5, ER4, Drawer 2 |
| Plot Type | Interval RMS (10-min.) f < 3 Hz |

**Notes:**

- This plot is similar to the plot on the first page except that it is zoomed into the date range from 23-Sep-2013 through 28-Sep-2013.
- This zoom-in reinforces that some EWIS trigger times were coincident with peaks in SAMS RMS values, but also a significant number that are not coincident.
- The lack of coincidence for many SAMS RMS peaks could be a reflection of the fact that some localized vibratory transients detected by SAMS in the JEM do not propagate to the EWIS sensor location and vice versa.

| | |
|---|---|
| Regime: | Vibratory |
| Category: | Vehicle |
| Source: | EWIS Port Truss Unknown |

# EWIS Port Truss Unknown Qualify




| Description | |
|---|---|
| Sensor | SAMS 121f05<br>142.0000 sa/sec (6.00 Hz) |
| Location | JPM1F5, ER4, Drawer 2 |
| Plot Type | Interval MAX (10-min.) f < 6 Hz |

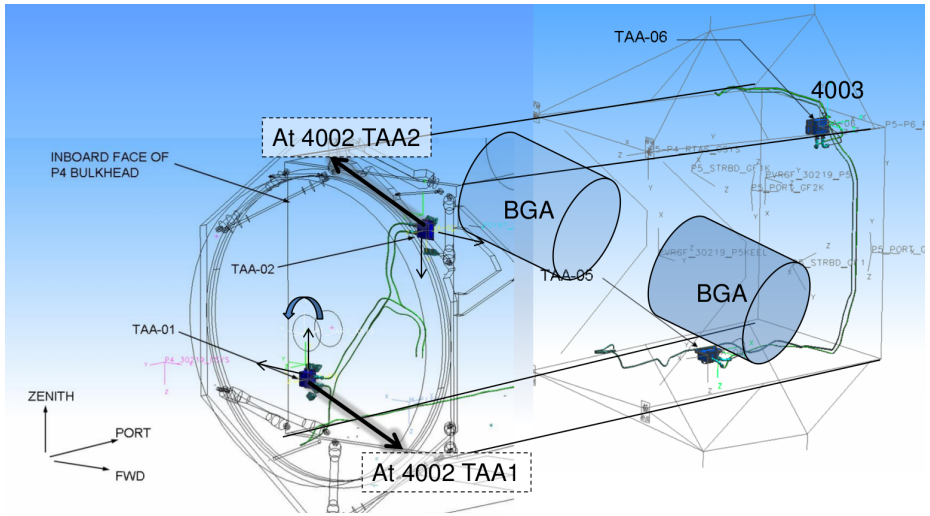
**Notes:**

- This plot is similar to the plot on the previous page except that this plot shows the 10-minute interval maxima of the measured acceleration vector magnitude instead of RMS values.
- Also, this plot represents more of the acceleration spectrum with low-pass filtering below 6 Hz (instead of 3 Hz).
- Note the same pattern via maxima as was seen for RMS values.
- Also, the daily cycle of crew sleep and wake is harder to discern in this plot because of the vertical axis scale to fit the very large peak.
- The large peak in this plot shows a significant transient event that was coincident in both the SAMS interval maximum value and in the EWIS trigger time near noon on GMT 25-Sep-2013.

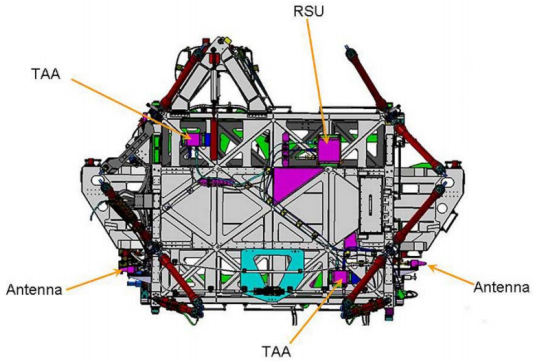
| | |
|---|---|
| Regime: | Vibratory |
| Category: | Vehicle |
| Source: | EWIS Port Truss Unknown |

# EWIS Port Truss Unknown
## Ancillary Notes

The ISS MER Struct & Mech team noted an increasing trend in acceleration data from the P4 truss. The accelerometer data from P4 [External Wireless Instrumentation System (EWIS)] sensors [triggered at 5mg threshold] starting 04-Sep-2013 and going through 27-Sep-2013. This is likely a distinct mechanical disturbance that repeats [mostly] once-per-orbit. No correlation found yet with SARJ controller or RTAS. A table of EWIS trigger times is shown to the right, with several of the 120 trigger events (rows) snipped out in order to fit the table on this page.




External Wireless Instrumentation System (EWIS)




This is a picture of the inboard bulkhead on P4 looking outboard. This Bulkhead is just outboard of the SARJ

| Year | Month | Day | Hour | Min | Sec | Min from Last | Orbit from last |
|---|---|---|---|---|---|---|---|
| 2013 | 9 | 3 | 20 | 36 | 23 | | |
| 2013 | 9 | 4 | 4 | 20 | 5 | 463.7 | 5.0 |
| 2013 | 9 | 4 | 13 | 27 | 38 | 547.6 | 6.0 |
| 2013 | 9 | 4 | 21 | 20 | 56 | 473.3 | 5.1 |
| 2013 | 9 | 4 | 22 | 55 | 4 | 94.1 | 1.0 |
| 2013 | 9 | 5 | 0 | 27 | 11 | 92.1 | 1.0 |
| 2013 | 9 | 5 | 2 | 0 | 24 | 93.2 | 1.0 |
| 2013 | 9 | 5 | 3 | 33 | 58 | 93.6 | 1.0 |
| 2013 | 9 | 5 | 5 | 6 | 57 | 93.0 | 1.0 |
| 2013 | 9 | 5 | 6 | 39 | 29 | 92.5 | 1.0 |
| 2013 | 9 | 5 | 8 | 13 | 23 | 93.9 | 1.0 |
| 2013 | 9 | 5 | 11 | 18 | 21 | 185.0 | 2.0 |
| 2013 | 9 | 5 | 12 | 52 | 16 | 93.9 | 1.0 |
| 2013 | 9 | 5 | 14 | 24 | 46 | 92.5 | 1.0 |
| 2013 | 9 | 5 | 15 | 58 | 9 | 93.4 | 1.0 |
| 2013 | 9 | 5 | 17 | 30 | 30 | 92.4 | 1.0 |
| 2013 | 9 | 5 | 19 | 3 | 24 | 92.9 | 1.0 |
| 2013 | 9 | 5 | 22 | 9 | 5 | 185.7 | 2.0 |
| 2013 | 9 | 6 | 7 | 4 | 10 | 535.1 | 5.8 |
| 2013 | 9 | 6 | 15 | 12 | 0 | 487.8 | 5.3 |
| 2013 | 9 | 6 | 21 | 22 | 50 | 370.8 | 4.0 |
| 2013 | 9 | 6 | 22 | 55 | 36 | 92.8 | 1.0 |
| 2013 | 9 | 7 | 0 | 28 | 7 | 92.5 | 1.0 |
| 2013 | 9 | 7 | 3 | 34 | 34 | 186.5 | 2.0 |
| 2013 | 9 | 7 | 8 | 13 | 5 | 278.5 | 3.0 |
| 2013 | 9 | 7 | 15 | 57 | 43 | 464.6 | 5.1 |
| 2013 | 9 | 7 | 17 | 30 | 40 | 93.0 | 1.0 |
| 2013 | 9 | 7 | 20 | 36 | 44 | 186.1 | 2.0 |
| 2013 | 9 | 7 | 21 | 59 | 35 | 82.9 | 0.9 |
| 2013 | 9 | 7 | 22 | 8 | 54 | 9.3 | 0.1 |
| 2013 | 9 | 8 | 1 | 14 | 29 | 185.6 | 2.0 |
| 2013 | 9 | 8 | 2 | 48 | 6 | 93.6 | 1.0 |
| 2013 | 9 | 8 | 4 | 21 | 5 | 93.0 | 1.0 |
| 2013 | 9 | 8 | 5 | 54 | 20 | 93.3 | 1.0 |
| SNIP | | | | | | | |
| 2013 | 9 | 25 | 5 | 4 | 55 | 372.1 | 4.0 |
| 2013 | 9 | 25 | 6 | 38 | 48 | 93.9 | 1.0 |
| 2013 | 9 | 25 | 8 | 19 | 20 | 100.5 | 1.1 |
| 2013 | 9 | 25 | 11 | 22 | 18 | 183.0 | 2.0 |
| 2013 | 9 | 25 | 14 | 27 | 16 | 185.0 | 2.0 |
| 2013 | 9 | 25 | 14 | 39 | 12 | 11.9 | 0.1 |
| 2013 | 9 | 25 | 17 | 11 | 14 | 31474.9 | 342.1 |